REMARKS/ARGUMENTS

Claims 1-34 are pending in the present application. Claims 12, 13, 20, and 21 have been amended. Claims 30-34 have been added. Claims 1, 12, 14, and 24 are independent claims.

Claim 20 has been amended to merely correct typographical errors. Applicants respectfully submit that these amendments are merely editorial in nature, and do not materially change the claimed scope.

Problems Addressed by the Present Invention

In existing ring networks, such as ATM rings, the use of virtual paths in the ring network may give rise to traffic disruptions when a node is inserted into the ring network. Specifically, the newly inserted mode is not operative in existing ring networks until all the existing nodes are reprogrammed individually and manually to make use of the virtual paths associated with the new node. It is the problem of traffic disruptions specifically caused by the reconfiguration of virtual paths in existing rings, which is being addressed by the present invention. See, e.g., page 1: lines 7-16 of the present specification.

Exemplary embodiments of the present invention address this problem by bringing the newly inserted mode into ring operations in stages, thereby allowing the other nodes to continue processing traffic before the virtual paths of the new node have been fully established. In particular, the present invention takes advantage of the fact that the newly inserted mode can be configured to operate as a pass through for the existing virtual path after it is physically connected to the

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ring. Since the new node is not fully participating in ring operations at this time, the other existing nodes can continue to utilize the existing virtual path (and therefore continue to process traffic) before all of the nodes have been reprogrammed with the new virtual path assignments. The new node is not brought into full ring operations until after each of the existing nodes have been updated, and its virtual paths have been assigned (e.g., via a hub node). Thus, the reconfiguration of virtual paths in the ring network resulting from the insertion of a new node does not cause the traffic disruptions experienced by existing ring networks, which use virtual paths.

Prior Art Rejections

Claims 1-3, 6-11, 14-16, and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,370,146 to Higgins et al. (hereinafter Higgins) in view of U.S. Patent No. 6,301,254 to Chan et al. (hereinafter Chan). This rejection is respectfully traversed.

In the Amendment filed October 14, 2003, Applicants previously argued that Chan fails to disclose operating an inserted node as a pass through before a virtual path is established for the inserted node (see Amendment of October 14, 2003 at page 12, third paragraph).

In the Response to Arguments of the outstanding Office Action (page 2), the Examiner does not refute this point. Instead, the Examiner responds by stating that, "Applicants' argument that Chan provides no teaching of allowing an inserted node to pass through before a virtual path has been established is moot,

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because the feature of pass through is provided by Higgins...Chan is relied upon for the setting-up of virtual paths."

Thus, it is apparently the Examiner's position that Higgins teaches the use of a newly-inserted node as a pass through for traffic before this node is configured for full operations in the ring. Applicants respectfully disagree. Higgins column 4, lines 35-47 discloses:

> "After the two neighbor nodes return to open mode, the host sends a message to the new node in response to which the new node attempts to verify that it is re-cognizable by the master node. The new node does this by sending a message to the master node...[and waiting] for an acknowledgement from the master node. When the acknowledgement is received, then a final verification is performed to ascertain that the new node or nodes as well as the neighbor nodes have open ports. Thereafter, the new node can be configured to transmit and receive packets to and from the inter-nodal network[.]"

Since a pass through node for traffic must be able to receive and transmit packets from the network, Applicants submit that the above-cited section of Higgins teaches away from operating newly inserted node as a pass through until after the new node is fully transitioned in the RUNNING state. In fact, column 10: lines 37-42 (and Fig. 8) of Higgins teach that before the new node enters the RUNNING state, it is in an "WAIT FOR ADDITION state 112 in which it will wait and do nothing until a special message is received from the host 4, which message is MSG: ADD NODE 114." (The ADD_NODE message causes the new node to enter the RUNNING state -- see Fig. 8.)

Thus, it is clear that the neighbor nodes of Higgins have their respective I/O ports opened in order to allow the new node(s) to exchange configuration and

verification messages with the host node -- not to allow the new node(s) to operate as a pass through by receiving and transmitting traffic.

Applicants further submit that patentability may lie in recognition of the source of a problem, even though the solution may be obvious once the source is recognized. See *In re Sponnoble,* 160 USPQ 237, 243 (CPAP 1969). As discussed above, Applicants have recognized that traffic disruptions in existing ring networks may occur because a newly inserted node does not perform any operations until all of the nodes have been configured with the virtual path(s) associated with the new node. The present invention attempts to solve this problem by allowing the newly inserted node to operate as a pass through for existing virtual paths before all of the ring nodes have been reconfigured to establish the virtual path(s) for the new node.

Applicants respectfully submit that Higgins provides no disclosure of using virtual paths in a ring network. Accordingly, Higgins provides no recognition of the problem of traffic disruptions occurring because each of the ring nodes must be reconfigured to recognize the virtual path of a new-inserted mode before that new node can perform any ring operations. Accordingly, Applicants respectfully submit that Applicants' solution (i.e., operating an inserted mode as a pass through for existing virtual paths) is not taught or suggested by Higgins.

Applicants respectfully submit that independent claims 1 and 14 are allowable at least for the reasons set forth above. Further, it is respectfully submitted that claims 2, 3, 6-11, 15, 16, 19, 20, and 22-29 are allowable at least

by virtue of their dependency on claims 1 and 14. Thus, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Claims 4 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Higgins and Chan, and further in view of U.S. Patent No. 6,366,556 to Ballintine et al. (hereinafter Ballintine). Applicants respectfully submit that Ballintine fails to remedy the deficiencies of Higgins and Chan set forth above in connection with independent claims 1 and 14. Accordingly, Applicants respectfully submit that claims 4 and 17 are allowable at least by virtue of their dependency on claims 1 and 14.

Claims 5 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Higgins and Chan, and further in view of U.S. Patent No. 5,500,857 to Nakata (hereinafter Nakata). Applicants submit that Nakata fails to remedy the deficiencies of Higgins and Chan as set forth above in connection with independent claims 1 and 14. Thus, Applicants respectfully submit that claims 5 and 18 are allowable at least by virtue of their dependency on claims 1 and 14.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. § 103 rejections of claims 4, 5, 17, and 18.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chan. This rejection is respectfully traversed.

As amended, claim 12 recites "determining, at a ring hub node, that a node has failed." It is respectfully submitted that this feature is not taught or suggested by Chan.

In the Amendment filed October 14, 2003, Applicants argued that Chan fails to disclose the removal of a failed node. Specifically, Applicants argued that Chan does not teach distinguishing between link failures and node failures within the ring network. See page 13 of the Amendment filed October 14, 2003.

In the Response to Arguments (page 3) of the Office Action, the Examiner responds to this argument by referring to column 6: lines 5-10 of Chan, "[t]he IRC protocol includes the following functions...adding/deleting a node to/from the ring; notifying other nodes on the ring when either a SONET or an ATM failure has been detected; and notifying other line cards in the node when failure occurs." The Examiner argues that "[i]t is clear that the protocol Chan discloses includes functions for deleting a node and detecting link failure."

Applicants agree that Chan teaches the separate functions of deleting a node and detecting link failures. However, Chan does not disclose, nor does the Examiner assert that Chan discloses, determining that a node has failed and removing the failed node, as required by independent claim 12. There is no teaching in Chan of treating link failures any differently than node failures. Chan does not remedy either type of failure by deleting a node.

In the Amendment of October 14, 2003, Applicants further argued that Chan fails to disclose updating network topology information based on a detected fault. Independent claim 12 clearly recites "providing instructions...to update link topology information...[to indicate] that the failed node is removed from the ring." The Examiner responds to this argument by pointing to Chan's teaching that "[t]he updating of LUTs is accomplished so that the previously configured VPs

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are...eliminated if destined for a deleted SONET node" (column 9: lines 16-19).

Here it is apparent that the Examiner is again trying to infer some connection

between Chan's deletion of a node and a detected failure. However, there is no

teaching or suggestion in Chan from which such an inference can be made.

Applicants respectfully submit that Chan provides no teaching or suggestion of

actually detecting a failure in a node and, thus, there could be no teaching or

suggestion in Chan of deleting a node based on such a detected failure.

Accordingly, Applicants respectfully submit that Chan fails to teach or

suggest determining that node has failed, as required by independent claim 1.

However, in order to more clearly distinguish the claimed invention over Chan and

thereby expedite prosecution, Applicants have amended independent claim 12 to

recite that this determination is performed at a ring hub node. It is respectfully

submitted that Chan provides no disclosure of the hub node for detecting failures.

Rather, Chan discloses that the function of failure detection is performed by each

node on the basis of whether it has received a notification signal from a

neighboring node (see Chan at column 13: line 64-column 14: line 9).

Applicants also submit that any modification of Chan to implement a hub

node for detecting such failures would impermissibly change the principle of

operation of Chan. See MPEP at § 2143.02.

Accordingly, it is respectfully submitted that independent claim 12 is

allowable over Chan at least for the reason set forth above. Thus, the Examiner is

respectfully requested to reconsider and withdraw this rejection.

Claims 13 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chan and Higgins. It is respectfully submitted that Higgins fails to remedy the deficiencies of Chan set forth above. Accordingly, Applicants submit that claims 13 and 21 are allowable at least by virtue of their dependency on claim 12. Thus, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Conclusion

Entry of this Amendment After Final is respectfully requested. It is submitted that all of the stated grounds of rejection have been properly traversed. Applicants therefore respectfully request that the Examiner withdraw all presently outstanding rejections and issue a Notice of Allowance in connection with the pending claims.

Should the Examiner believe that any outstanding matters remain in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Reg. No. 47,305) at the telephone number of the undersigned in order to conduct an interview in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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